A NEW VARIABLE STAR.

By Torvald Köhl.

The star No. 121 in Birmingham's Catalogue, = No. 144 in Chandler's Catalogue of red stars,—position for 1875.0: $5^h\ 38^m\ 12^s.47$ ($+ 3^s.57$), $+ 20°\ 38'\ 24''.9$ ($+ 1''.9$)—has shown a remarkable change in brightness. It has formerly been estimated as a star of the 7.5th magnitude (B. D. has 7.7, Berlin A. G. Catalogue has 7.2). Dreyer observed it at Dublin from 1875 to 1879, and I at Odder from 1887 to 1893, without seeing any change of light in this orange-red star until on January 22, 1898, when I was surprised at the faintness of the star, which is now of about the 9th magnitude, and thus it has also been seen on the dates January 27 and 31 and February 1, 1898.

Odder, Denmark, February 6, 1898.

MAGNIFYING RATIOS OF EWING SEISMOGRAPHS OF THREE COMPONENTS, AND OF THE DUPLEX-PENDULUM SEISMOGRAPHS.

By C. D. Perrine.

In the following deductions the pen and plate are assumed to move with respect to the steady-point, and the motions of each are considered separately. In the reduction of the recorded displacements given by the pens upon the smoked glass plate, to the actual displacement of the Earth particle, there are several circumstances to be taken into account. In the case of the two horizontal components there are four considerations, viz:—

A.—The ratio of the pens, *i. e.* the distance from the point of the pen to the steady-point, divided by the distance from the steady-point to the point of support.

B.—The angle which the meridian of the pens makes with the true meridian of the place. If they coincide, there is no factor to be introduced on that account.

C.—The angle which a radius of the circular plate drawn through the point of the pen makes with a line drawn through